Agenda Report

December 11, 2023

TO: Honorable Mayor and City Council

THROUGH: Municipal Services Committee (December 5, 2023)

FROM: Water and Power Department

SUBJECT: **ADOPTION AND APPROVAL OF THE 2023 POWER INTEGRATED RESOURCE PLAN FOR THE WATER AND POWER DEPARTMENT**

RECOMMENDATION:

It is recommended that the City Council:

1. Find that the proposed actions are statutorily exempt from the California Environmental Quality Act ("CEQA") pursuant to CEQA Guidelines Sections 15262, Feasibility and Planning Studies; and 15271, Early Activities Related to Thermal Power Plants;

2. Adopt and approve the 2023 Power Integrated Resource Plan ("IRP") for filing with the California Energy Commission ("CEC") for the Water and Power Department ("PWP"); and

3. Support PWP's continuing decarbonization trajectory while exceeding State regulatory requirements, and simultaneously working towards achieving the policy goal of 100% Carbon-Free electricity by 2030, through the utilization of the Waypoint Framework supported by the 2023 IRP Scenario 2 modeling results.

ENVIRONMENTAL ADVISORY COMMISSION RECOMMENDATION:

On September 12, 2023, the Environmental Advisory Commission ("EAC") was presented an informational update regarding the recommendations in this report.

Subsequently, the EAC held a Special Meeting on September 26, 2023, and provided correspondence to the City Council in Attachment B.

MUNICIPAL SERVICES COMMITTEE RECOMMENDATION:

At its December 5, 2023 meeting, the Municipal Services Committee ("MSC") recommended that the City Council adopt the IRP for filing with the CEC with three additional conditions:

1. Create a dashboard to track progress towards meeting the carbon-free goals of Resolution 9977;
2. Conduct an internal review of the IRP in two years and present to the MSC; and
3. Develop an integrated strategic plan that outlines a path to carbon-free energy through 2030 while synergizing key inputs including the Power Delivery Master Plan ("PDMP"), Waypoint Framework, Cost of Service and Rate Studies ("COS"), and others.

It was recommended that PWP return to MSC in eight months with a dashboard and that the integrated strategic plan be prepared in consultation with Energy and Environmental Economics, Inc ("E3") and/or other consultants. Additionally, PWP will provide the MSC with periodic informational updates between CEC's 5-year filling requirement.

On October 10, 2023, the draft 2023 IRP was presented to the Municipal Services Committee ("MSC"). Discussion culminated with a directive for PWP to return with a more detailed plan for achieving the carbon-free goals of Resolution 9977. Information was also requested specific to the Waypoint Framework, which was introduced at the meeting as an interim guidance or destination solution that continues the trajectory of aggressive decarbonization. Specifically, the Waypoint would provide a specific point in time at which the maturation of new and emerging technologies can be reviewed so that any changes that better support a 100% carbon-free solution can be incorporated in the 2028 IRP.

On November 14, 2023, PWP returned to MSC and presented a detailed overview and discussion of the Waypoint Framework in compliance with the October 10th directive. The MSC asked staff to return with additional details on the following four specific areas:

1) Create an incremental Waypoint in Year 2026 which allows for future evaluation and technical analysis of the planned T.M. Goodrich ("Goodrich") transfer station updates and modifications that are described in the Power Delivery Master Plan ("PDMP").
2) Provide incremental information and plans on the Distributed Energy Resources ("DER") and Demand Response ("DR") resource types which are affirmed in the optimized modeling results of carbon-free Scenario 2.
3) Provide an incremental timeline and detail associated with PWP's planned 2024 Cost of Service and Rate Design Study.
4) Provide commentary of dashboard concepts that could be used to assist in the future monitoring, communication, and reflection of current or forecasted status.

The discussion data and additional detail of the October 10, 2023, and November 14, 2023, MSC meetings are summarized in Attachments B and C.

BACKGROUND:

Publicly Owned Utilities ("POU") such as PWP must prepare an IRP at least once every five years and file with the CEC, in accordance with California regulations. PWP produced its latest IRP in 2018 and issued a voluntary update in 2021. However, while a standard

its latest IRP in 2018 and issued a voluntary update in 2021. However, while a standard IRP process includes modeling to assist with scenario optimizations, PWP's goal was defined in advance through City of Pasadena Resolution 9977, which directs the City Manager to use the IRP process to plan multiple approaches to achieve the policy goal to source 100% of Pasadena's electricity from carbon-free sources by the end of 2030, while optimizing for affordability, rate equity, stability, and reliability. Accordingly, PWP modeled five scenarios, three of which meet goals of the Resolution.

For the development of the IRP, PWP contracted with the Alliance for Cooperative Energy Services Power Marketing LLC ("ACES") for modeling and consulting services, a collaboration that included a computer simulation study of various energy resource portfolio designs that might be considered for Pasadena. This effort examined five distinct designs or conditions (hereinafter referred to as "scenarios") and several related impact studies to produce useful findings that can inform future policies and programs affecting and related to PWP's portfolio. Of the five studies, three were modeled to achieve 100% carbon-free electricity by 2030.

To ensure transparency in the modeling results, PWP contracted with Energy and Environmental Economics, Inc. ("E3"), a leading energy consulting firm focused on clean energy policy implementation, to conduct an independent review provided in Attachment D.

The 2023 IRP process also included robust public outreach, including creation of a Stakeholder Technical Advisory Group ("STAG"), a diverse collaboration of citizens and business representatives who attended numerous meetings and provided valuable input and feedback; two community meetings; and regular informational updates to both the MSC and EAC. A full list of meetings, discussion topics, and other outreach efforts appear in Attachment B.

The proposed IRP was first presented to the MSC on October 10, 2023. After comprehensive discussion, staff was directed staff to return with a more granular implementation plan, along with a Waypoint framework that would uniquely allow for the evaluation and potential implementation of new and/or emerging technologies that might develop at scale in forward years.

Accordingly, on November 14, 2023, staff presented a plan aligned with the detailed implementation criteria of carbon-free Scenario 2 until a defined Waypoint in Year 2028. This specific point in time allows for reassessment of new and emerging technologies for potential implementation. The Implementation Plan with the 2028 Waypoint provides a detailed pathway to 100% carbon-free electricity by 2030 without losing time or opportunity costs from a planning perspective before the next IRP process in 2028.

The MSC directed staff to return with more information and details on the following:

1) Create an incremental Waypoint in Year 2026 which allows for future evaluation and technical analysis of the planned Goodrich transfer station updates and modifications that are described in the PDMP.
2) Provide incremental information and plans on the DERs and DR resource types which are affirmed in the optimized modeling results of carbon-free Scenario 2.
3) Provide an incremental timeline and detail associated with PWP's planned 2024 Cost of Service and Rate Design Study.
4) Provide commentary of dashboard concepts that could be used to assist in the future monitoring, communication, and reflection of current or forecasted status.

PWP is addressing all four areas as summarized below, with full details in the Addendum to the IRP document (Attachment A of this report). Also, comprehensive details about the IRP process and the 2028 Waypoint are included in the Agenda Reports presented to the MSC on October 10, 2023, and November 14, 2023 (Attachments B and C, respectively).

Goodrich Transmission Upgrades – Year 2026 Waypoint

Since its inception, PWP has been a transmission-constrained utility which receives 100% of its imported power through a single point – Goodrich substation located in the eastern portion of Pasadena. Goodrich is owned by PWP but operated and maintained by Southern California Edison ("SCE") and connects Pasadena to the California Independent System Operator ("CAISO") power grid.

Due to distribution system limitations, PWP is currently able to import only 280 MW of the 336 MW of contracted capacity through Goodrich. This has and continues to create limitations for procurement opportunities for qualifying external resources. A major upgrade to Goodrich, which includes the installation of larger transformer enhancements to the 34.5-kV distribution system and the retrofit of several substations, will improve PWP's ability to use the additional import capacity. The upgrade program is included in the PDMP and is currently scheduled to be completed in 2032.

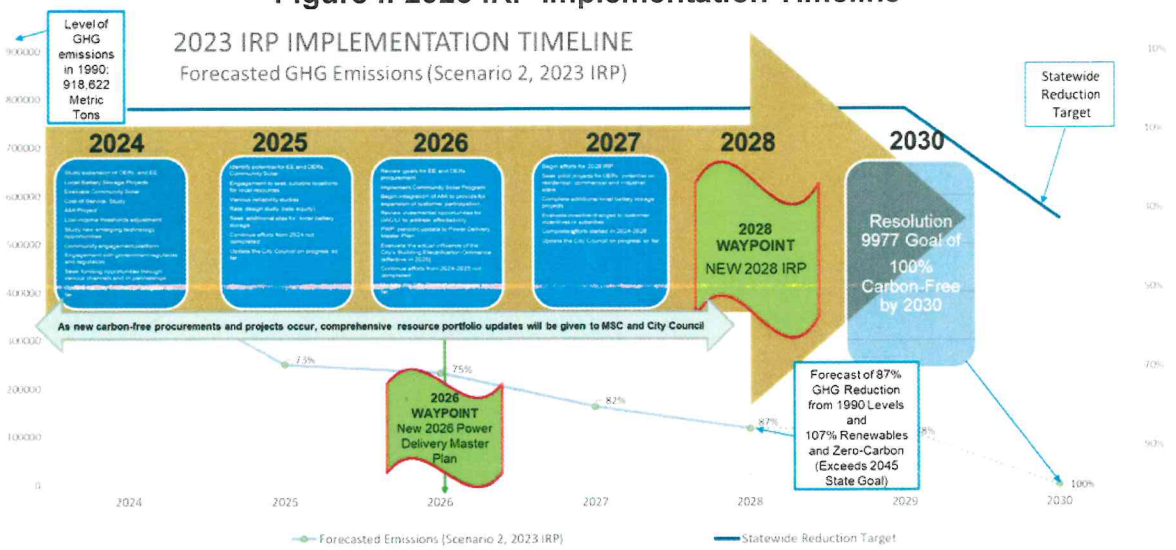
The PDMP was adopted by the City Council in 2022 and represents an infrastructure investment of approximately $821 million over multiple years. The PDMP provides infrastructure investment to sustain system reliability and performance and is updated every five years with changes driven by the most recent IRP. The next update is planned for 2026 and will include the requirements of the 2023 IRP.

The modeling of Scenario 2 is dependent on significant resource acquisition as well as careful consideration of the location of those resources, whether within Pasadena or outside the City. All energy imported into Pasadena, both CAISO market purchases and imported energy from owned or contract resources, requires bulk electric transmission system utilization and will require entry through Goodrich.

In compliance with MSC directives and as shown in Figure I, a formal Waypoint has been added to the IRP in Year 2026 to evaluate Goodrich and PDMP interrelated distribution

and sub-transmission infrastructure requirements supporting the zero-carbon 2030 policy goals.

Figure I: 2023 IRP Implementation Timeline



Expansion of DER and DR

DERs and DM are energy management strategies and standard offerings in today's utility industry and utilized both statewide and nationally. DERs are generally connected to the distribution system, and normally represent smaller generation resources that help reduce overall load (example: rooftop solar), while DR is often a managed and/or controlled change in a utility's load or power consumption, often in concert with contracted third-party resources (example: smart meters, retail and commercial demand reduction, etc). The 2023 IRP identifies these specific resource types and their role in contributing toward the carbon-free policy goals.

Scenario 2 requires a significant amount of Utility-Scale and Customer-Side resources by 2030 that is in addition to the current and growing volume of both DER and DM resources that are embedded within the PWP service territory.

As presented at the October 10, 2023 MSC meeting, the successful achievement of a carbon-free by 2030 goal represents compressed time windows for all resource attributes, including both DERs and DM, in addition to the more traditional renewable energy acquisitions such as solar and wind.

In recognition of the timeline challenges, as well as today's competitive resource acquisition environment, in which resources are solicited, negotiated, and approved several years in advance of implementation dates; PWP anticipates similar advance planning requirements in the area of DERs and DM. To help understand the potential for distributed resources, PWP will engage in proactive approaches such as conducting a

detailed Market Potential Study which will help evaluate system capabilities and program design costs. A Hosting Analysis will also be performed to identify the optimal location of distributed resources in PWP's territory. Future outreach will also be conducted to explore the potential to expand opportunities to collaborate with commercial partners on projects and goals.

It should be noted that any DER or DR program must align with existing regulatory requirements, both operationally and administratively, as in rate structures and/or other related considerations.

The implementation of Advance Metering Infrastructure ("AMI") which is expected within the next five years, is a critical supporting milestone in expanding both DR and DER offerings and could facilitate programs specific to residential, commercial or industrial classes.

As programs are developed, considerations will include method of control, customer incentives, and grant opportunities to reduce any cost impacts. PWP is also currently exploring new statewide programs such as Demand Side Grid Support ("DSGS") and Distributed Electricity Backup Assets ("DEBA") that allow distributed resources to provide grid support during extreme events.

PWP will collaborate with other utilities that have launched successful DR programs as well as engage specialty consultants where value can be added.

2024 Electric Cost of Service and Rate Design Study

A Cost-of-Service and Rate Design Study ("COS") is planned for 2024 which will include a comprehensive review of PWP's power system costs, allocations, and budgetary categories. It will also study customer usage behaviors, by customer type, to provide a better understanding of how each would be impacted by various rate structures. The findings of the analysis and proposed rate designs will provide the basis for electric rates for a 10-year period and produce a rate model that can be adjusted for changes in energy policy requirements. The model will also help identify rates to support new technologies such as Time of Use ("TOU") rates, Net Energy Metering ("NEM"), Customer Self-Generation, Metered EV rates, and also low-income assistance programs.

In order to effectively recover costs, several key factors will be considered in the modeling including AMI program implementation, DER and DR expansion, Utility-Side Energy Storage, elimination of carbon-based energy supply, stranded investments, expansion of assistance programs, development, and implementation of the IRP and PDMP, and regulatory compliance requirements.

A Request for Proposals ("RFP") for the COS is expected to be published in December 2023 with an expected project timeline of 18 months.

Metrics Dashboard

PWP is committed to transparency and communication of decarbonization activities, with plans to create dashboards using web-based technologies to facilitate the distribution of information that would include:

- Quarterly progress updates on timeline, resource procurement, and other activities
- Summaries of relevant studies that have been completed or commissioned
- CAISO metrics related to key transmission corridors and programs
- Regulatory compliance tracking
- Answers to Frequently Asked Questions, as needed

PWP will present progress updates to utility governance at least annually or when requested. Additionally, a significant number of renewable energy contracts will require approval in future years, providing regular opportunities to review fiscal and/or energy portfolio considerations.

Approval and Adoption of the IRP

In order to meet State of California compliance requirements and fulfill PWP's obligation to the community, it is respectfully recommended that the City Council adopt and approve the 2023 IRP. In addition to meeting CEC filing requirements, the IRP incorporates Resolution 9977, which directs the City Manager to use the IRP process to identify multiple approaches to transition to the policy goal of sourcing 100% of Pasadena's electricity from carbon-free sources by the end of 2030, while optimizing for affordability, rate equity, stability, and reliability.

The 2023 IRP also includes an Implementation Plan aligned with carbon-free Scenario 2, to achieve carbon-free electricity by 2030 and defines formal Waypoints in years 2026 and 2028 to evaluate planned upgrades to Goodrich substation, and new/emerging/maturing technologies that will help PWP reach full 100% decarbonization. As stated above, PWP will monitor progress and provide regular updates to the MSC and City Council.

CITY COUNCIL POLICY CONSIDERATION:

The 2023 IRP supports the City's Urban Environmental Accords goals with respect to increasing renewable energy and reducing GHG emissions, the General Plan Energy Element, the 2018 Power IRP (as updated in 2021), and the City Council's Strategic Planning Goals. The 2023 IRP specifically supports the following Urban Environmental Accords goals: Action 1 - Renewable Energy; Action 2 - Energy Efficiency; and Action 3 - Climate Change. The 2023 IRP also satisfies the directives of Resolution 9977.

ENVIRONMENTAL ANALYSIS:

As shown in Table 1, the City Council found that the adoption of PWP's past IRPs were exempt from review pursuant to State CEQA Guidelines Sections 15262 and 15271. CEQA exempts from its application those projects that involve "only feasibility or planning studies for possible future actions, which the agency, board or commission has not approved, adopted, or funded ... " and which do not have a legally binding effect on later activities. (State CEQA Guidelines §15262.) To fall under this exemption, however, the lead agency is required to consider environmental factors.

Table 1: City Council Adoption of PWP's Past IRPs

IRP	City Council Approval Date
2009	March 11, 2009
2012	March 5, 2012
2015	June 22, 2015
2018	December 10, 2018
2021 Update	January 31, 2022

PWP presents the 2023 IRP with strong consideration of environmental factors. A primary goal of the IRP is to analyze ways to reduce the environmental impact of Pasadena's overall energy portfolio, particularly, the reduction of GHG. Furthermore, any specific construction projects undertaken pursuant to the PWP 2023 IRP will be subject to full CEQA compliance, both as and when appropriate.

FISCAL IMPACT:

Approval of the PWP 2023 Power IRP compliance filing will have no direct fiscal impact. The IRP will, however, provide essential data and a framework to evaluate power resource and program choices, some of which, if executed, would hold potentially substantial cost implications for PWP and its electric ratepayers.

Respectfully submitted,

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Attachments:
Attachment A: 2023 IRP (Latest Draft with Addendum)
Attachment B: Agenda Report presented to MSC on October 10, 2023
Attachment C: Agenda Report presented to MSC on November 14, 2023
Attachment D: Independent Review by E3